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ABSTRACT

This paper on traumatic brain injuries begins with statistics on the incidence of the disorder, especially as they relate to Colorado. Traumatic brain injury is then defined, and problems caused by traumatic brain injury are discussed. The components of effective programming for students with traumatic brain injuries are described, followed by the implications for schools at the district level, the building level, the classroom level, and the personal service provider level. Appendices offer suggestions for transition programming, physical care planning and support, individual health care plans, environmental management and support, differentiated academics, programming in the life skills area, developmental/compensatory skill development, and effective instruction. A list of print resources and organizational resources serving Colorado concludes the paper. (JDD)

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Guidelines Paper:

TRAUMATIC BRAIN INJURIES

Special Education Services Unit
Colorado Department of Education

March 1991

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CONCEPT PAPER
TRAUMATIC BRAIN INJURIES

DID YOU KNOW...

***** That 1,000,000 children and adolescents in the nation sustain brain injuries each year - and that many of these injuries are severe enough to leave temporary or permanent disabilities?

***** That in Colorado an estimated 1% of the school aged-population (about 6,000 students) suffers from a head injury *each year* ?

***** That the largest group of head-injured people are in the 15- to 24-year-old age range, but that the frequency rate is nearly as high for youngsters under 15?

***** That approximately 75% of students who return to schools after sustaining a head injury require services to meet unique/individual needs related to their injury?

***** That school systems are the primary and, in most cases, the *exclusive* provider of long-term services for brain injured persons through the age of 21 or until high school graduation?

***** That Section 504 of the Rehabilitation Act guarantees that no citizen may be discriminated against because of a handicap - this includes the area of public education?

***** That traumatic brain injury is now a category of handicap under the rules of the Individuals with Disabilities Education Act (P.L. 94-142)?

In order to effectively meet the needs of students with traumatic brain injuries in our schools, it is necessary to know what a traumatic brain injury is and how it impacts the lives and learning of students.

WHAT IS A TRAUMATIC BRAIN INJURY?

A traumatic brain injury (TBI) is caused by an insult to the head from an external physical force that may produce a diminished or altered state of consciousness. This trauma affects the brain and may result in impaired cognitive, physical, communicative, and/or affective functioning.

Traumatic brain injury is not of congenital origin or of a degenerative nature and it may be caused by:

- child abuse
- automobile or motorcycle accidents
- gunshot or other wounds to the head
- falls
- trauma to the head from hard objects such as bats or balls
- other accidents which involve the head that cause brain trauma.

WHAT HAPPENS AS A RESULT OF A TRAUMATIC BRAIN INJURY?

A traumatic brain injury is a very complex phenomenon because the nature, extent, and results of every injury are different depending on location and extent of damage. Serious traumatic brain injuries may result in a period of unconsciousness/coma. However, those that aren't as serious can cause significant problems also, and even a momentary loss of consciousness can lead to long-term problems.

TBI often results in diverse impairments that may be either temporary or permanent, causing from partial to total disability. Unfortunately, the injury often intensifies pre-existing maladaptive behaviors or disabilities. In addition, new problems in cognitive, communicative, affective and/or physical functioning may occur. To complicate the situation further, students with brain injuries may experience rapid and erratic changes in behaviors, especially during the first two to five years following the injury.

No two students with brain injury are alike because each injury results in a unique profile depending on location and extent of damage. For instance, a student with an injury that affects his vision will have a very different set of problems and needs than one with

an injury that primarily affects the speech areas of the brain. The following is a description by functioning area of difficulties which may occur following brain injuries:

Cognitive Area: Students may have trouble initiating, organizing and completing tasks, adjusting to change, using appropriate judgment, remembering for a short or long time, maintaining attention and energy for learning, and/or thinking and reasoning.

Communicative Area: Students may exhibit difficulties with initiating and sustaining communication, discriminating relevant from irrelevant information, processing verbal information effectively and efficiently, articulating and voicing sounds, sequencing and formulating ideas, and/or understanding and producing written and spoken communication.

Social-Emotional Area: Students who have been brain-injured may have difficulty perceiving, evaluating, and using social cues and context appropriately, sustaining appropriate and satisfying peer and family relationships, demonstrating age appropriate social/sexual behavior, maintaining emotional stability, accepting and coping with the results of their injury, maintaining self-esteem, using self-control, restraining impulsivity, acting independently, and being motivated.

Physical Impairments: Students may sustain short- or long-term physical disabilities. There may be damage to the neurological system which leads to seizures. Shunts may also be necessary. Visual motor/perceptual skills may be affected causing problems with spatial orientation. Gross motor skills may be damaged leading to difficulty with balance, strength, equilibrium, mobility, and endurance. Fine motor skills may be impaired resulting in loss of dexterity. There may be an overall decrease in the speed of processing and motor response time.

If oral-motor skills are impaired, there may be difficulties in eating and speaking. The gastro-intestinal tract and/or the neurological system may be damaged causing eating problems which may require feeding tubes; the bowels and urinary track may be affected leading to the need for bowel and/or urinary programs. In addition, the loss of stamina and a persistent sense of fatigue are common, and often very disabling by-products of brain trauma.

It is obvious from this description that the effects of a brain injury can be catastrophic. However, a brain injury may lead to only slight damage in one or a few of these areas. Thus, *it is essential to consider each individual student's needs and environment carefully in order to provide effective services and to develop programming tailored to the student.*

ARE THERE ANY GENERALIZATIONS THAT CAN BE MADE ABOUT STUDENTS WHO HAVE TRAUMATIC BRAIN INJURIES?

Although each traumatic brain injury produces a different profile, there are several significant characteristics generally associated with traumatic brain injuries which are important to keep in mind for developing effective educational programming.

1. Brain injury almost always results in **slow processing** - students will need more time to accomplish everything.
2. The injury will probably affect **memory and organizational abilities**. Students may have difficulty with short- and/or long-term memory and memory may be intact at one time, but gone at another. In addition, memory for newly learned material may be more affected than memory for previously learned material or for recent events. Students will need compensatory strategies to help them accommodate successfully.
3. Problems caused by the brain injury may be **hidden** to casual observers if the student looks "normal." Therefore, it may be difficult for others in the student's environment to understand the need to make accommodations.
4. The effects of the traumatic brain injury will result in **rapid, erratic changes in behavior**. For instance, a student may have appropriate classroom behavior one day and inappropriate behavior (which may be completely beyond his control) the next day.
5. Effects of a brain injury are **long lasting**. Although progress is to be expected, especially during the first five years, the effects of brain damage do not go away completely and it is important to provide continued support, education and training in compensatory strategies.
6. The student's problems are acquired, not developmental. Therefore, students with TBI will remember how things were before their accident. This causes feelings of

frustration, sadness, depression, and anger. Ironically, often a brain-injured student may lack the self-awareness to see the need for compensatory strategies.

WHAT ARE THE COMPONENTS OF EFFECTIVE PROGRAMMING FOR STUDENTS WITH TRAUMATIC BRAIN INJURIES?

In order for a student who has sustained a traumatic brain injury to be successful in school, modifications in the existing school environment, curriculum, instruction, and schedule may be necessary. The following areas are critical components of effective, holistic programming for students with traumatic brain injuries:

- Transition Planning
- Physical Care Planning, Management, and Support
- Environmental Management and Support
- Expanded Curriculum and Effective Instruction

The emphasis placed on these four program components may vary for each student due to the effects of the brain injury and may change rapidly for any one student due to fluctuations in recovery rate.

Transition Planning. Because students who have traumatic brain injuries present complex profiles with very specific and sometimes intense needs, it is important that there be *immediate and long-term planning* to aid in transition - first from a hospital or rehabilitation facility, back to home, then to school. Transition planning is also needed later when moving from one grade, school, or setting to another. Key factors of transition planning include:

- multidisciplinary decision making
- parent involvement
- frequent reviews
- planning for every transition
- coordination of personnel from all involved agencies
- identification of a case manager to serve as the coordinator for communication and services.

Appendix One, "Suggestions for the Transition Component," lists specific suggestions for effective transition programming.

Physical Care Planning, Management, and Support. Depending on the effects of the brain injury, students may require monitoring or direct care for immediate and long-term medical and physical needs. *Physical care and support may be the most crucial consideration for some students with brain injuries and when there are physical needs careful planning and coordination is essential.*

Appendix Two, "Suggestions for Physical Care Planning, Management, and Support," lists suggestions for implementing this component.

Environmental Management and Support. Due to the student's difficulties in memory, impulsivity, ability to initiate activities, and lack of stamina, environmental modifications are often necessary. The goal is to provide support that assures success until the student learns self-management skills. *Students with brain injuries may require intense levels of support and environmental adjustments.* Continuous planning is essential so that the needed degree of support is provided as a student's needs change.

Appendix Three, "Suggestions for Environmental Management and Support," provides suggestions.

Expanded Curriculum and Effective Instruction. This program component focuses on changes within the student. It contains three strands around which a student's curriculum and instruction should focus: Differentiated Academics, Life Skills, and Developmental/ Compensatory Skills.

The Differentiated Academic strand is necessary because a brain injury may cause problems with all, some, or none of the academic skills that the student possessed before the injury. Students may need to continue to develop skills that are intact and to relearn those which are affected. Therefore, students may perform various academic skills with different levels of proficiency. Carefully differentiated curriculum will be necessary if a student is to continue to receive educational benefit. Appendix Four lists ideas for providing differentiated academics.

The Life Skills strand, important for all students, is crucial for those who have brain injuries because they may need specific, deliberate instruction to learn, relearn, or compensate for essential pragmatic and employability skills. Appendix Five lists some suggestions in this area.

Finally, the Developmental/Compensatory strand focuses on curriculum and instruction to relearn communicative, cognitive, affective, and physical skills that may have been affected. In many cases students will need to learn strategies to compensate for skills which have been lost or impaired. Therefore, *intense instruction in developmental skills and compensatory strategies may be necessary.* Appendix Six offers suggestions focusing on developmental/ compensatory skills.

If students with brain injuries are to learn and/or relearn academic, developmental/compensatory, and life skills, it is necessary to make instructional adjustments also. These students often need more opportunity than their peers to practice new skills. They need to apply targeted skills in various settings, they need individual or small group instruction, and they may profit most from specific, direct instruction in targeted skills. Appendix Seven contains ideas for providing effective instruction.

In summary, because students with brain injuries have specific, sometimes intense additional needs, and because they often need more time and more intense instruction in order to learn *adjustments to typical outcomes, expectations, and instructional activities may be necessary.*

WHAT ARE THE IMPLICATIONS FOR SCHOOLS?

Because of the unique, often intense needs of students with traumatic brain injuries, planning must occur at the district, building, classroom, and individual student level.

At the District Level. It may be necessary for each administrative unit to review their district plans and procedures to ensure that there are mechanisms in place to meet the needs of students with traumatic brain injuries, both those students covered by special education laws and those covered by Section 504 of the Rehabilitation Act. The following suggestions are especially important when considering students with TBI. (** Items marked with asterisks are legally required for a student who is labeled as "disabled" according to the national and state laws if the activities or strategies are identified on the student's Individualized Education Plan as developed by the staffing team. They are good educational practices for other students who have brain injuries.)

- Develop district plans and procedures for responding to intense, physical, medical, affective, communicative, cognitive and transition needs which may follow a traumatic brain injury.
- Identify district staff from educational, health, and support services with expertise who can be a resource to the student, family and teachers. Help should be available for both crisis situations and long-term intervention.
- Be prepared to act quickly and use staff flexibly when a student with a brain injury returns to or enrolls in a school.
- Provide awareness training for all teachers and administrators about the causes, effects, and educational implications of brain injuries.
- Determine which buildings are physically accessible.
- Be aware that federal and state definitions and criteria for identifying TBI students will be determined soon.

At the Building Level: The following recommendations may be helpful when a student with a traumatic brain injury returns to or enrolls in a school:

- Assign a case manager as soon as possible to expedite transition to the school by developing a collaborative relationship and facilitating communication among school and agency professionals, the local physician, the parents and the student. Parents are especially crucial for problem solving and for developing effective programming. (See Appendix 1)
- ** Utilize a multidisciplinary team to assess the student's current functioning, evaluate environmental constraints and demands, and identify the student's needs.
- Develop a building level plan to creatively combine resources and develop programming to meet the unique and often intense needs of the student. (See Appendices 2 & 3)
- Identify one individual to be the primary, ongoing support person for the student.
- ** Make necessary adjustments to the student's schedule and to the environment. (See Appendix 3)
- Determine what the student needs to accomplish in order to meet district graduation requirements.
- Provide specific training for staff and students about the nature of brain injuries and specific needs of the student involved.

At the Classroom Level: The following suggestions may increase the likelihood of success for students with brain injuries:

- Modify existing classroom management systems to accommodate specific needs of the student. (Appendix 7)
- Utilize flexible, creative grouping strategies (peer tutoring, peer supports, cooperative learning) to enhance learning opportunities.
- ** Adjust instructional activities and outcomes so that the student receives educational benefit.
- ** Provide appropriate curriculum to meet unique academic, life skills, and developmental/compensatory needs. (Appendices 4, 5, 6)
- ** Establish appropriate individual grading standards.

At the Personal Service Provider Level: As you work with students with traumatic brain injuries, please:

- Accept the fact that students with brain injuries may have inappropriate behaviors that will attract attention and cause unusual problems in school. Be responsible **to** the student, but not **for** the student's behavior.
- Develop and use a support group to help problem solve and to provide emotional support.
- Enlist the help of the entire school staff to share responsibility to provide consistency in programming.
- Maintain frequent, open and realistic communication with the family.
- Keep your sense of humor.

APPENDICES

Appendix One
Suggestions for the Transition Component

Need for Transition Planning. Frequent and systematic transition planning for students with brain injuries is needed because:

- Cognitive and social difficulties associated with brain injuries make it difficult for students to adapt to new situations and understand new expectations.
- Cognitive and processing difficulties not seen earlier may become evident as tasks become more demanding and complex.
- Personnel in the new environment must be trained about brain injury and its implications for the student.
- Successful transition from school to the adult community requires early and ongoing collaborative planning among school, family and adult services agencies (i.e., Colorado Rehabilitation Services, Job Training Partnership Act (JTPA), Community Center Boards).
- Continuity in health care or support is essential because physical status impacts upon the student's ability to learn.

Immediate Action. The following suggestions may facilitate the return of the student from the hospital, rehabilitation facility or home, back to school:

1. Assign a case manager to coordinate programming and act as a liaison and serve as the student's advocate.
2. Provide immediate and in-depth collaborative efforts among the school, parents, physicians, and agencies involved. It is especially important to involve the student's parents in all planning and program decisions.
3. Train the staff and the student's peers about the nature of brain injuries and specific needs of the returning student.
4. Utilize a multidisciplinary team to identify needs and determine appropriate services. This is required if the student is being considered for or is already in special education. Otherwise, it is a helpful practice.
5. Develop an appropriate building level environmental management/support system. (Appendix 3)

6. Encourage everyone involved with the student to ask good questions at the transition staffing. (See "Questions for Parents and Staffing Teams," next page.)
7. Develop an appropriate health management/support system.
8. Encourage parents to access a local head injury support group. (See list of Support Organizations at the end of this paper.)

Long-Term Action. The following may facilitate transition from one educational and/or community setting to another:

1. Develop transition plans for functioning in the home, school, community, and work settings.
2. Conduct frequent reviews of student progress and needs.
3. Plan for every transition.
4. Develop realistic expectations for career planning, personal management, and employment.
5. Establish a support network in every new setting.

QUESTIONS FOR PARENTS AND STAFFING TEAMS

These questions were developed by Wade Yenowine, a teacher at Englewood's Craig Hospital School Program in response to requests for ideas about designing appropriate programs for students with head injuries. It is not designed to be all-inclusive, but to provide ideas of some questions which might be asked prior to the design of any student's special program.

1. What level of memory problems can be expected in working with this student?

2. Has the student had difficulty using "appropriate social behaviors" since the accident?

3. Was a "behavior program" used when this student was in rehabilitation? If so, what were the major components?

4. Are there medical issues about which the school should be aware?

5. Does the student need any health care procedures done at school? Is there physician's written authorization for this?

6. Are there physical issues (e.g., balance, coordination, mobility, etc.) that this program should address?

7. Will any outside agencies be seeing this student? If so, is there a mechanism in place for communication with appropriate school personnel?

8. Is this student supposed to be taking medication? If so, who will dispense it, where will it be stored, and what is the frequency of use? Is there physician's written authorization to give it in school?

9. What is the status of family dynamics?

10. Has there been any effect on this student's "speed of processing" (receptive or expressive)?

11. When will this initial program be reviewed for effectiveness?

Appendix Two
Suggestions for Physical Care Planning and Support

Need for Physical Care Planning, Management, and Support. A brain injury may cause:

- medical/health concerns,
- fine, gross and/or perceptual motor concerns,
- change in sensory function, vision, hearing, smell, touch, taste.

Any of these may have an effect on the student's physical functioning which may in turn affect educational performance. Students may require monitoring or direct care from a school nurse, physical therapist, occupational therapist and/or other staff.

Immediate Action. The following suggestions may facilitate the student's receiving educational benefit when he/she returns from the hospital, rehabilitation facility or home to school:

1. Complete an assessment of the student's medical/health status and physical functioning level to determine needs, goals, and objectives and determine who will be involved in meeting these needs in the school setting.
2. Determine accessibility of the environment, adaptive equipment needs and necessary environmental modifications.
3. Develop a Health Care Plan that serves as a management tool for school personnel to use which reflects the student's health and physical needs. This should include recommended safety/emergency guidelines. (See Health Care Plan Components, next page.)
4. Provide appropriate training to school staff about their roles in meeting ongoing medical/health needs.
5. Designate the appropriate personnel necessary to support the student's successful re-entry and functioning in school.
6. Provide educationally significant services to meet physical needs across a variety of the school's environments to ensure realistic, appropriate, and safe functioning throughout the day.
7. Identify a local physician for emergency care if the student receives major care at an out-of-town hospital or institution.

Long-Term Action. The following may be helpful in long-term physical planning and support:

1. Conduct ongoing reassessments of the student's medical/health status and physical functioning. Update the Health Care Plan to reflect changing needs.
2. Continue necessary services for ongoing development of realistic functioning (mobility, self-care, employment).

INDIVIDUAL HEALTH CARE PLAN COMPONENTS

I. Identifying Information

II. Source of Medical care

III. Health Problems List

IV. Description of Illness/Condition

V. Specific Precautions

VI. Health Care Treatment Plan

- A. Schedule
- B. Personnel Trained
- C. Procedure
- D. Physician's Authorization

VII. Emergency Information

- A. Person(s) to Contact
- B. Back-up Plan

VIII. Transportation Plan

IX. Re-evaluation Date

Appendix Three
Suggestions for Environmental Management and Support

Need for Environmental Management and Support. Students who have traumatic brain injuries often have difficulties with memory, impulsivity, task initiation and stamina. They may need external support and supervision to help compensate for their difficulties. If the student has been labeled "disabled" according to procedures and criteria of state and national laws, then strategies and/or modifications should be written into the student's IEP.

In order for a student to successfully reenter school, the student's needs in the following areas should be considered:

1. School policies
   a. Attendance
   b. Discipline
   c. Transportation
   d. Graduation requirements

2. School schedule
   a. Time modifications
      - changes in length of the day
      - changes in length of each class
      - extended school year may be needed to prevent regression
      - graduation may need to be delayed to provide time to learn skills
   b. Content modifications
      - changes in what classes the student takes
      - changes in curriculum and instruction of classes being taken
   c. Location modifications
      - modifications in the student's schedule may be needed to allow him/her to be able to get from one location to another
      - home bound instruction may be necessary
   d. Modifications to accommodate other specific needs
      - an alternative to the school cafeteria may be needed, as the noise level may be taxing and too stressful
      - frequent rest periods may need to be built into the schedule
      - changes in the daily school schedule should be minimized

3. Modifications in supervision

   In the case of students with brain injuries, supervision is a crucial concern. The extent of supervision needed will vary with the severity and length of time since the injury. Examples of helpful supervision strategies include:

   a. Buddy systems with peers for support.
   b. A designated adult to provide a consistent "safe place" for the student and to monitor student's progress and use of compensatory strategies.
   c. Consistent expectations, reinforcements and consequences throughout the school day. This will require the collaborative efforts of many people including administrators, teachers, office, maintenance, transportation and cafeteria personnel, and paraprofessionals.

Appendix Four
Suggestions for Providing Differentiated Academics

Need for Differentiated Academics. Because a student with a traumatic brain injury may have lost abilities differentially across academic skills, it is essential to carefully assess the student's functioning in all areas and to begin with the student's present performance level and move systematically from there. Curriculum based assessment techniques are especially helpful in providing sequential and specific instruction needed for academic skill development.

The following strategies may be helpful during academic instruction:

To help accommodate for difficulties in reading related to visual perceptional difficulties:

- use white cardboard with a cut-out window to expose one line at a time
- use arrows or cue words
- use color coding
- use large print books
- use books on tape (free services are available through the Colorado State Library for the Blind and Physically Handicapped, (303) 866-2081)

To help accommodate for difficulties in written language:

- use a felt tip pen for easy writing
- use a word processor
- use a clipboard to stabilize paper
- use a tape recorder for lectures or assignments
- have a classmate take notes using carbon paper

To help accommodate for difficulties in reading comprehension:

- teach students narrative and text structure strategies
- teach students "what good readers do" (pre-reading strategies, summarizing)

To help accommodate for difficulties in math:

- use graph paper or lined paper turned sideways to help students with spacial organization
- provide extra time to do problems and more space for calculations
- use manipulatives and visuals such as actual coins, blocks, calculators, graphs, charts.

Appendix Five
Suggestions for Providing Programming in the Life Skills Area

Need for Life Skills Curriculum. A traumatic brain injury often causes difficulties in cognitive, communicative, affective and/or physical functioning which has significant impact on a student's ability to learn and use life skills. TBI students need direct instruction and specific curriculum to develop skills needed to function in home, school, leisure, community, and work domains.

Students with traumatic brain injuries may need:

- Specific instruction in functional life activities and how to perform those in various settings.

- Guidance in making appropriate career choices by participating in career awareness, exploration and preparation activities.

- Help in reconciling current cognitive, affective, communicative, and physical abilities with career goals and social aspirations.

- Help in developing leisure time activities.

- Assistance in investigating post-secondary options and supports such as further training and education opportunities, appropriate living situations, community support systems.

These suggestions are especially important in meeting specific, often intense life skills needs:

1. The development and use of pragmatic skills necessary for everyday functioning should be a cornerstone of programming for students with traumatic brain injuries.

2. Appropriate adult service agencies should be included in planning.

3. Begin to develop a transitional plan no later than 9th grade. Planning should be incorporated into an IEP planning process if the student has been labeled "disabled" according

to state and national guidelines. If the student has not been labeled, transition planning is still considered to be a good educational practice for students with traumatic brain injuries.

4. Be able to provide answers to the following questions by the time a student graduates:

   - Where is the student going vocationally? (employment, supported employment, post-secondary education)

   - What independent living skills are needed? Does the student have the skills he needs? If not, what plans are in place to acquire them?

   - Where will the student live?

   - What are the student's transportation needs?

   - How will the student maintain his or her social life?

   - What leisure activities will the student participate in?

   - How will the student maintain medical care and treatment?

   - What community agencies can help?

Appendix Six
Suggestions for Developmental/Compensatory Skill Development

Need for Developmental/Compensatory Skill Development. While students with traumatic brain injury may share some characteristics with students who have learning, language or affective difficulties, they are fundamentally different. Some significant differences include the following:

1. A student with a traumatic brain injury may have intense needs to develop attending behavior, skills to memorize newly learned information, impulse control, organization and planning, self-evaluation and monitoring, and pragmatic language. These are only SECONDARY concerns for students with language/learning disabilities (LLD). On the other hand, a student with TBI may <u>not</u> have intense needs in vocabulary development, comprehension, and syntax, which are often PRIMARY concerns for students with LLD.

2. The communication/cognition profile of a student with TBI may be inconsistent. Some high level skills may be intact, while there are problems performing other skills ordinarily thought to be at a lower level. Common lower level skills that are often affected as a result of a brain injury and that have a profound effect on communication and cognition are attending, sequencing, and remembering.

3. A brain injury may result in extreme problems in generalizing, integrating, and structuring information. In addition there may be problems with organizing, planning, initiating, and self-monitoring tasks. All of these problems are related to difficulties with what is called "executive functioning."

4. A student with TBI may have a fund of previously learned skills and knowledge which are in the process of returning, so (s)he may have a very "spotty" information base. Thus, old information and skills may return somewhat easily; new ones may be very difficult to acquire.

5. A student's language/communication skill level may be deceiving. (S)he may be able to communicate quite adequately on a surface level, but be unable to provide details or complex explanations that indicate in-depth understanding. Also, a student may be able to perform some language tasks in structured situations,

but be unable to perform the same tasks in other less structured situations, requiring self-initiation.

6. Inappropriate behavior may be related to difficulty with language. For instance, a student may understand language concretely, misinterpret what he hears and then behave inappropriately. In addition, behavior problems may be related to poor impulse control, difficulty in self-monitoring and/or in planning and structuring activities. Any of these causes will make it difficult for a student to control his/her own behavior or to even know when the behavior is inappropriate.

7. Slow auditory processing and word retrieval difficulties may make it difficult for a student to respond, thus it may appear that the student either doesn't know the answer or is being uncooperative.

8. A student's memory of himself as a successful communicator and competent thinker may make current difficulties especially confusing and frustrating, leading to anger and depression.

9. A general lack of self-awareness may lead a person with a brain injury to think he is doing "just fine" and thus make it difficult to understand the need to develop compensatory strategies or learn new skills.

These differences make the **developmental/compensatory** skill strand a **most crucial** aspect of the Expanded Curriculum. *The unique needs related to these students' handicaps drives what is taught.* Curriculum must to be available and utilized that focuses on teaching and/or reteaching communicative and cognitive skills such as:

- attending to visual and auditory cues
- memory and sequencing
- appropriate, pragmatic language
- interpretation of abstract language
- comprehension of figurative language
- critical thinking
- organization of ideas
- learning strategies
- problem solving
- self-monitoring and initiating activities
- specific study skills that will be effective for the individual.

Students also need to learn compensatory strategies for memory, sequencing, word finding and organizational deficits which will not remediate. Successful strategies commonly used include memory notebooks, daily schedules, learning logs, daily notes on a computer disk, webbing techniques, mnemonic strategies and self-charting of newly learned skills.

In addition, because of the effect that traumatic brain injury has on affective functioning, curriculum may also be necessary to meet emotional and social needs of brain injured students. Curriculum is needed to teach students information and skills about:

- understanding one's current level of functioning
- dealing with anger about the accident
- accepting lifetime changes that may have resulted from the injury
- realistic goal setting
- personal values clarification
- accepting responsibility for self
- developing an internal locus of control
- acquiring and maintaining friends
- using social skills
- effective self-advocacy.

Appendix Seven
Suggestions for Providing Effective Instruction

Need for Specific Instructional Approaches. Teaching a child with traumatic brain injury requires the ultimate in observation, analysis and flexibility. Optimal results are more likely when staff uses keen OBSERVATION of how the child functions, ANALYZES carefully the underlying reasons for the obstacles that child is encountering, and then uses FLEXIBILITY in trying various solutions to problems.

The following suggestions are helpful instructional strategies for teaching any set of skills or any subject to students with traumatic brain injuries.

Establish an effective classroom environment:

- provide one-to-one instruction, if necessary, but slowly integrate the student into larger groups when appropriate
- provide a consistent and predictable environment
- develop a signaling code and a follow-up procedure for use when the student becomes lost
- develop supervision procedures appropriate to the individual need so that there is someone to monitor behavior if needed
- provide extra time to get tasks done.

Teach in a way that facilitates learning:

- speak in short, simple, concrete language if necessary
- give written and verbal instructions, accompanied by picture cues
- break instructions down into simple, concrete components
- limit amount of information presented at one time
- present information at a slow pace to allow time for processing
- repeat often
- give student additional time to process information before responding
- associate new information with previously learned information
- provide feedback and summarize important concepts frequently
- develop multisensory lessons

- provide opportunity for practice (in a variety of situations and environments) to encourage generalization of newly learned information.

Provide support to develop and maintain appropriate behavior:

- develop specific, but not complex behavioral standards
- make sure the student knows, understands, and is able to accomplish the behavioral expectations
- give direct and explicit feedback to the student about his/her behavior
- reinforce classroom rules regularly
- be consistent
- repeat behavioral expectations often
- give tangible rewards
- emphasize the positive.

RESOURCES

RESOURCES

BOOKS, ARTICLES

An educator's manual: What educators need to know about students with traumatic brain injury. (1988). Southborough, Massachusetts: National Head Injury Foundation, Task Force on Special Education.
Cost: $22.00
To order: National Head Injury Foundation
333 Turnpike Road
Southborough, MA 91771
(508) 485-9950

Begali, V. (1987). Head injury in children and adolescents: A resource and review for school and allied professionals. Brandon, VT: Clinical Psychology Publishing.
Cost: $24.95
To order: Clinical Psychology Publishing Company
4 Conant Square
Brandon, VT 05733
(800) 433-8234

Deaton, A. V. (1987). Behavioral change strategies for children and adolescents with severe brain injury. Journal of Learning Disabilities, 20, 581-589.

Mira, M., Tyler, J., and Tucker, B. (1988). Traumatic head injury in children: A guide for schools. Kansas City: University of Kansas Medical Center, Children's Rehabilitation Unit.
Cost: $7.50 each or $4.50 with an order of 25 or more copies
To Order: Bobbie Jinski
University of Kansas Medical Center
Children's Rehabilitation Unit, Suite 137
39th and Rainbow Boulevard
Kansas City, KS 66103
(913) 588-5630

Statewide Resource Directory. (1989). Denver, Colorado: Colorado Head Injury Foundation.
Cost: $5.00
To order: 925 West Kenyon Avenue, Unit 8
Englewood, CO 80110
(303) 761-8552

Tyler, J. S. (1990). Research into practice. Serving students with traumatic brain injuries in the learning disabilities classroom. LD Forum, 15(4), 28-29.

STATE AGENCIES THAT MAY BE HELPFUL

Colorado Department of Education
Special Education Services Unit
201 East Colfax Avenue
Denver, CO 80203
Lois Adams, Consultant, (303) 866-6704

Colorado Department of Health
Handicapped Children's Program
4210 East 11th Avenue
Denver, CO 80220
Patricia McAteer, Nursing Consultant, (303) 331-8459
Jan McNally, Nursing Consultant, (303) 331-8457

Colorado Rehabilitation Services
*Rocky Mountain Regional Head Injury Center
1575 Sherman Street, Fourth Floor
Denver, CO 80203-1714
Gary Angerhofer, (303) 866-3227

*Rocky Mountain Regional Head Injury Center is being formed with fiscal support from a U. S. Department of Education grant to Colorado Rehabilitation Services. It is a new Center which will focus on advocacy issues.

TREATMENT FACILITIES

See the Statewide Resource Directory published by the Colorado Injury Foundation (listed under Resources, Books and Articles) for a complete listing of treatment facilities specializing in traumatic head injuries.

SUPPORT ORGANIZATIONS

Colorado Head Injury Foundation, Inc.
Sharon Thorson, Executive Director
925 West Kenyon Avenue, Unit 8
Englewood, CO 80110
(303) 761-8552

Local Chapters of the Head Injury Foundation:

Boulder
Angie Bruno, (303) 422-9639
Kathy Adams, H: (303) 838-4521
W: (303) 426-2007

Brush
Peggy Holloway, (303) 842-2587

Colorado Springs
Joyce Meurer, (719) 574-3686

Denver
Lisa Hart, (303) 989-6660

Durango
Dr. Chris Berry, (303) 247-1925

Fort Collins
Linda Richter, (303) 224-4582
Richard Nolte, (303) 484-9648

Grand Junction
Sherrie Fotheringham, (303) 243-3011

Greeley
Dorothy Loftus-Nall, (303) 350-6566
Harriet Cox, (303) 284-6797

Thornton
Bob Krump-Bertram, (303) 288-3000

*** For up-to-date information about meeting location and times of local support groups, call the contact person or the Colorado Head Injury Foundation.

PEOPLE RESOURCES

COLORADO DEPARTMENT OF EDUCATION
TASK FORCE ON TRAUMATIC BRAIN INJURIES

1. Lois Adams
   Consultant, Moderate Needs Project
   Colorado Department of Education
   201 East Colfax Avenue
   Denver, CO 80203
   (303) 866-6704

2. Carol Anne Carl
   Special Education Teacher
   Douglas County High School
   2842 Front Street
   Castle Rock, CO 80104
   (303) 688-3166

3. Mary Ellen Covino
   Special Education Teacher
   Governor's Ranch Elementary School
   5354 South Field
   Littleton, CO 80123
   (303) 973-1160

4. Janet Filbin
   Consultant, Severe/Profound Needs
   Colorado Department of Education
   201 East Colfax Avenue
   Denver, CO 80203
   (303) 866-6705

5. Jill Knapp
   Physical Therapist
   Fletcher Miller School
   200 Kipling Street
   Lakewood, CO 80226
   (303) 237-1279

6. Joan Pedersen Rich
   Speech/Language Pathologist
   The Children's Hospital
   1056 East 19th Avenue
   Denver, CO 80218
   (303) 861-6800

7. Mary Ann Warfield
   School Nurse Consultant
   The Children's Hospital
   1056 East 19th Avenue
   Denver, CO 80218
   (303) 861-6062

8. Wade Yenowine
   Teacher
   Craig Hospital School Program
   3425 South Clarkson
   Englewood, CO 80110
   (303) 789-8282

The Special Education Services Unit of the Colorado Department of Education would appreciate your comments about the guidelines paper, *Traumatic Brain Injuries*. With your help we can make the second edition even better.

Please take a minute to complete this evaluation and mail it back to us. Thank you.

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Other resources to include:

Other comments:

Mail to:

Dr. Lois Adams
Special Education Services Unit
Colorado Department of Education
201 East Colfax Avenue
Denver, CO 80203

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Special Education Services Unit
Colorado Department of Education
201 East Colfax Avenue
Denver, CO 80203

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